IN THE CLAIMS

Please substitute the following listing of claims for the previous listing of claims.

1. (Currently amended) A substrate processing chamber comprising:

(a) a support to support a substrate;

(b) a gas distributor;

(c) a gas energizer;

(d) a ~~wall~~ ceiling adapted to face the substrate, the ceiling comprising a radiation transmitting portion;

(e) a mask overlying the radiation transmitting portion and extending into ~~the interior~~ a process zone of the process chamber, the mask having an aperture comprising an aspect ratio that is selected to reduce deposition of process residue on the radiation transmitting portion; and

(f) an exhaust,

whereby a substrate held on the support may be processed by process gas distributed by the gas distributor, energized by the gas energizer, and exhausted by the exhaust, and whereby radiation may be transmitted through the aperture of the mask and the radiation transmitting portion.

2. (Previously presented) A substrate processing chamber according to claim 1 wherein the aperture has an aspect ratio that is sufficiently large to reduce access of process gas to the radiation transmitting portion.

3. (Previously presented) A substrate processing chamber according to claim 1 wherein the aperture has an aspect ratio of from about 1:1 to about 12:1.

4. (Previously presented) A substrate processing chamber according to claim 1 wherein the aperture has an aspect ratio that is sufficiently small to allow ions of the energized process gas to enter the aperture and etch away the process residue formed on a sidewall of the aperture and on the radiation transmitting portion.

5. (Previously presented) A substrate processing chamber according to claim 1 wherein the aperture has an aspect ratio of from about 0.25:1 to about 3:1.

6. (Previously presented) A substrate processing chamber according to claim 1 wherein the aperture has a diameter or width of from about 0.1 to about 50 mm, and a height of about 0.5 to about 500 mm.

7. (Original) A substrate processing chamber according to claim 1 wherein the mask comprises an array of hexagonal apertures.

8. (Original) A substrate processing chamber according to claim 1 wherein the mask comprises a material that is resistant to erosion by the process gas.

9. (Original) A substrate processing chamber according to claim 8 wherein the mask comprises one or more of Al_2O_3, SiO_2, AlN, BN, Si, SiC, Si_3N_4, TiO_2, or ZrO_2.

10. (Original) A substrate processing chamber according to claim 1 further comprising an electrical field source that is adapted to couple electrical energy to the wall to reduce deposition of the process residues on the wall.

11. (Original) A substrate processing chamber according to claim 1 further comprising a magnetic field source adapted to provide a magnetic flux across the wall to reduce deposition of process residues on the wall.

12. (Currently amended) A substrate processing chamber comprising:

(a) a support having a receiving surface capable of supporting a substrate;

(b) a gas distributor capable of providing process gas in the chamber and a gas energizer that is capable of coupling energy to the process gas;

(c) a wall comprising a radiation transmitting portion that allows radiation to be transmitted therethrough to monitor processing of the substrate;

(d) a mask overlying the radiation transmitting portion and extending into ~~the interior~~ a process zone of the chamber, the mask having an aperture comprising an aspect ratio that is selected to reduce deposition of process residue on the radiation transmitting portion, the aspect ratio being from about ~~1:1~~ 0.25:1 to about ~~12:1~~ 3:1; and

(e) an exhaust capable of exhausting process gas from the chamber.

13-16. (Canceled)

17. (Original) A substrate processing chamber according to claim 12 further comprising an electrical field source that couples electrical energy to the radiation transmitting portion to further reduce deposition of process residues on the radiation transmitting portion.

18. (Original) A substrate processing chamber according to claim 12 further comprising a magnetic field source adapted to provide a magnetic flux across the radiation transmitting portion to further reduce the deposition of process residues on the radiation transmitting portion.

19. (Currently amended) A substrate processing chamber comprising:

(a) a support to support a substrate;

(b) a gas distributor;

(c) a gas energizer;

(d) a ~~wall~~ ceiling adapted to face the substrate, the ceiling comprising a radiation transmitting portion ~~comprising~~ having a mask extending into ~~the interior~~ a process zone of the chamber, the mask having a plurality of apertures, the apertures having an aspect ratio that is selected to reduce deposition of process residues on the radiation transmitting portion; and

(e) an exhaust;

whereby a substrate held on the support may be processed by process gas distributed by the gas distributor, energized by the gas energizer, and exhausted by the exhaust, and whereby radiation may be transmitted through the apertures and the radiation transmitting portion.

20. (Original) A substrate processing chamber according to claim 19 wherein the apertures have aspect ratios that are sufficiently large to reduce access of process gas to the radiation transmitting portion.

21. (Withdrawn) A substrate processing chamber comprising:

(a) a support;

(b) a gas distributor;

(c) a gas energizer;

(d) a wall comprising an aperture, the aperture having an aspect ratio selected to reduce deposition of process residue;

(e) an exhaust; and

(f) a process monitoring system,

whereby a substrate held on the support may be processed by process gas distributed by the gas distributor, energized by the gas energizer, and exhausted by the exhaust, and whereby radiation may be transmitted through the aperture to the process monitoring system.

22. (Withdrawn) A substrate processing chamber according to claim 21 wherein the wall comprises a radiation transmitting portion.

23. (Withdrawn) A substrate processing chamber according to claim 21 wherein the aspect ratio is sufficiently large to reduce access of process gas to the radiation transmitting portion.

24. (Withdrawn) A substrate processing chamber according to claim 21 wherein the wall comprises a mask.

25. (Withdrawn) A substrate processing chamber according to claim 24 wherein the mask blocks an otherwise exposed portion of a radiation transmitting portion.

26. (Currently amended) A ~~window~~ <u>ceiling</u> capable of being mounted on a process chamber <u>facing a substrate</u>, the ~~window~~ <u>ceiling</u> comprising:

a radiation transmitting portion ~~adapted to be mounted on a wall in the process chamber~~; and

an overlying mask adapted to extend into ~~the interior~~ <u>a process zone</u> of the chamber, the overlying mask comprising a plurality of apertures having an aspect ratio that is selected to reduce deposition of process residues on the radiation transmitting portion,

whereby radiation may be transmitted through the ~~window~~ <u>radiation transmitting portion</u> when a substrate is processed in the process chamber.

27. (Currently amended) A ~~window~~ <u>ceiling</u> according to claim 26 wherein the apertures have an aspect ratio that is sufficiently large to reduce access of process gas to the radiation transmitting portion.

28. (Currently amended) A ~~window~~ ceiling according to claim 26 wherein the mask apertures have an aspect ratio of from about 1:1 to about 12:1.

29. (Currently amended) A ~~window~~ ceiling according to claim 26 wherein the apertures have an aspect ratio that is sufficiently small to allow ions of an energized process gas to enter the apertures and etch away the process residues formed on a sidewall of the apertures and on the ~~window~~ ceiling.

30. (Currently amended) A ~~window~~ ceiling according to claim 26 wherein the apertures have an aspect ratio of from about 0.25:1 to about 3:1.

31. (Currently amended) A ~~window~~ ceiling according to claim 26 wherein the apertures have a diameter or width of from about 0.1 to about 50 mm, and a height of about 0.5 to about 500 mm.

32. (Currently amended) A ~~window~~ ceiling according to claim 26 wherein the mask comprises a material that is resistant to erosion by a process gas.

33. (Canceled)

34. (Currently amended) A ~~window~~ ceiling according to claim 26 wherein the mask comprises an array of hexagonal apertures.

35. (Currently amended) A ~~window~~ ceiling according to claim 26 wherein the mask comprises one or more of Al_2O_3, SiO_2, AlN, BN, Si, SiC, Si_3N_4, TiO_2, or ZrO_2.

36. (Currently amended) A ~~window~~ ceiling according to claim 26 wherein the radiation transmitting portion is absent a heating element for heating the radiation transmitting portion.

37. (Currently amended) A ~~window~~ ceiling according to claim 26 further comprising an electrical field source that is adapted to couple electrical energy to the radiation transmitting portion to reduce deposition of the process residues on the radiation transmitting portion.

38. (Currently amended) A ~~window~~ ceiling according to claim 26 further comprising a magnetic field source adapted to provide a magnetic flux across the radiation transmitting portion to reduce deposition of process residues on the radiation transmitting portion.

39. (Withdrawn) A method of processing a substrate in a process chamber, the method comprising the steps of:

(a) placing the substrate in the process chamber;

(b) maintaining first process conditions in the process chamber to process the substrate, the first process conditions including providing an energized process gas in the process chamber;

(c) masking a radiation transmitting portion in a wall of the process chamber to reduce deposition of process residue on the radiation transmitting portion and measuring a property of radiation transmitted through the radiation transmitting portion; and

(d) changing the first process conditions to second process conditions in relation to the measured property of the transmitted radiation.

40. (Withdrawn) A method according to claim 39 further comprising the step of directing an incident light beam through the radiation transmitting portion to be incident on the substrate and measuring a property of a reflected light beam that is reflected from the substrate and transmitted through the radiation transmitting portion.

41. (Withdrawn) A method according to claim 39 wherein the first process conditions comprise process conditions suitable for etching the substrate, and the second process conditions comprise process conditions suitable for stopping the etching process or changing a rate of etching of the substrate.

42. (Withdrawn) A method of processing a substrate in a process chamber, the method comprising the steps of:

(a) placing the substrate in the process chamber;

(b) maintaining process conditions in the process chamber to process the substrate, the process conditions including providing an energized process gas in the process chamber; and

(c) maintaining a magnetic flux across a portion of a wall of the process chamber.

43. (Withdrawn) A method according to claim 42 wherein the portion of the wall comprises a radiation transmitting portion.

44. (Withdrawn) A method according to claim 42 wherein step (c) comprises the step of maintaining a magnetic flux that is sufficiently high to reduce the deposition of process residue on the portion of the wall.

45. (Withdrawn) A method according to claim 42 wherein step (c) comprises the step of maintaining a magnetic flux having a magnetic field component that is substantially parallel to a plane of the portion of the wall.

46. (Withdrawn) A method according to claim 42 wherein step (c) comprises the step of maintaining a magnetic flux that is localized across a radiation transmitting portion of the wall, and comprises a higher magnetic flux across the radiation transmitting portion than across other portions of the chamber.

47. (Withdrawn) A method according to claim 42 wherein step (c) comprises the step of maintaining a plurality of magnetic poles about a perimeter of a radiation transmitting portion of the wall.

48. (Withdrawn) A method according to claim 42 wherein step (c) comprises the step of maintaining opposing magnetic poles that face one another around a perimeter of a radiation transmitting portion of the wall.

49. (Withdrawn) A method according to claim 42 wherein step (c) comprises the step of maintaining a magnetic flux having a magnetic field component that is substantially parallel to a plane of a radiation transmitting portion of the wall.

50. (Withdrawn) A method according to claim 42 wherein step (c) comprises the step of maintaining a magnetic flux that extends across a surface of a radiation transmitting portion of the wall.

51. (Withdrawn) A method according to claim 42 further comprising the step of providing a mask covering a radiation transmitting portion of the wall, the mask comprising an aperture that allows radiation to pass through.

52. (Withdrawn) A method of processing a substrate in a process chamber, the method comprising the steps of:

(a) placing the substrate in the process chamber;

(b) maintaining first process conditions in the process chamber to process the substrate, the first process conditions including providing an energized process gas in the process chamber;

(c) maintaining a magnetic flux across at least a portion of a radiation transmitting portion in a wall of the process chamber;

(d) measuring a property of radiation transmitted through the radiation transmitting portion; and

(e) changing the first process conditions to second process conditions in relation to the measured property of the transmitted radiation.

53. (Withdrawn) A method of processing a substrate in a process chamber, the method comprising the steps of:

(a) placing the substrate in the process chamber;

(b) maintaining process conditions in the process chamber to process the substrate, the process conditions including providing an energized process gas in the process chamber; and

(c) electrically biasing a portion of a wall of the process chamber.

54. (Withdrawn) A method according to claim 53 wherein the portion of the wall comprises a radiation transmitting portion.

55. (Withdrawn) A method according to claim 53 wherein step (c) comprises the step of electrically biasing the portion of the wall by a voltage that is sufficiently high to reduce deposition of process residue on the portion of the wall.

56. (Withdrawn) A method according to claim 53 wherein step (c) comprises the step of maintaining an electrode or coil adjacent to the portion of the wall, the electrode or coil being sized to provide an electrical flux across a surface of the portion of the wall.

57. (Withdrawn) A method according to claim 56 comprising the step of powering the electrode or coil with D.C., A.C., or R.F. energy.

58. (Withdrawn) A method according to claim 53 further comprising the steps of measuring a property of radiation transmitted through a radiation transmitting portion, and changing the process conditions in relation to the measured property of the transmitted radiation.

59. (Withdrawn) A substrate processing chamber comprising:

(a) a support capable of supporting a substrate;

(b) a ceiling at least partially facing the support, the ceiling having an opening therein;

(c) an inductor antenna covering at least a portion of the ceiling; and

(d) a monitoring system capable of detecting radiation transmitted through the opening.

60. (Withdrawn) A chamber according to claim 59 wherein the ceiling comprises a portion comprising SiO_2.

61. (Withdrawn) A chamber according to claim 59 wherein the ceiling comprises a portion comprising Si.

62. (Withdrawn) A chamber according to claim 59 wherein the ceiling comprises a portion comprising Al_2O_3.

63. (Withdrawn) A chamber according to claim 59 wherein the ceiling comprises a portion comprising TiO_2.

64. (Withdrawn) A chamber according to claim 59 wherein the ceiling comprises a portion comprising ZrO_2.

65. (Withdrawn) A substrate processing chamber comprising:

(a) a support having a surface capable of supporting a substrate;

(b) a gas distributor;

(c) a gas energizer;

(d) a wall comprising a radiation transmitting portion, the radiation transmitting portion being tilted relative to the support surface;

(e) an exhaust,

whereby a substrate on the support surface may be processed by process gas distributed by the gas distributor, energized by the gas energizer, and exhausted by the exhaust, and whereby radiation may be transmitted through the radiation transmitting portion.

66. (Withdrawn) A chamber according to claim 65 wherein the radiation transmitting portion is tilted at least about 2 degrees relative to the support surface.

67. (Withdrawn) A chamber according to claim 65 wherein the radiation transmitting portion is tilted from about 2 degrees to about 15 degrees relative to the support surface.

68. (Withdrawn) A chamber according to claim 65 wherein the radiation transmitting portion is above the support surface.

69. (Withdrawn) A chamber according to claim 65 further comprising a process monitoring system, whereby radiation may be transmitted through the radiation transmitting portion to the process monitoring system.

70. (Withdrawn) A chamber according to claim 65 further comprising a mask overlying the radiation transmitting portion.

71. (Withdrawn) A chamber according to claim 70 wherein the mask has an aperture.

72. (Withdrawn) A chamber according to claim 71 wherein the aperture has an aspect ratio selected to reduce deposition of process residue on the radiation transmitting portion.

73. (Withdrawn) A chamber according to claim 71 comprising means for reducing deposition of process residue on the radiation transmitting portion.

74. (Withdrawn) A substrate processing apparatus comprising:

a process chamber comprising a substrate support adapted to support a substrate in the process chamber;

a ceiling above the support, the ceiling comprising a gas distributor to introduce a gas into the chamber, and the ceiling having an aperture therein and a window exposed through the aperture;

a gas energizer adapted to energize the gas;

a process monitoring system adapted to detect a radiation transmitted through the window; and

an exhaust adapted to exhaust the gas from the chamber.

75. (Withdrawn) An apparatus according to claim 74 wherein the aperture has an aspect ratio that is sufficiently large to reduce deposition of process residues on the window.

76. (Withdrawn) An apparatus according to claim 74 wherein the aperture has an aspect ratio of from about 1:1 to about 12:1.

77. (Withdrawn) An apparatus according to claim 76 wherein the aperture has an aspect ratio of from about 0.25:1 to about 3.1.

78. (Withdrawn) An apparatus according to claim 74 wherein the aperture has a diameter or width of from about 0.1 to about 50 mm, and a height of about 0.5 to about 500 mm.

79. (Withdrawn) An apparatus according to claim 74 wherein the gas distributor is adapted to introduce a gas comprising a cleaning gas into the chamber.

80. (Withdrawn) An apparatus according to claim 79 wherein the gas distributor is adapted to introduce the cleaning gas into the chamber to clean surfaces in the chamber.

81. (Withdrawn) An apparatus according to claim 79 wherein the gas distributor is adapted to introduce a gas adapted to clean surfaces in the chamber and process a substrate.

82. (Withdrawn) An apparatus according to claim 74 comprising a mask overlying the window.

83. (Withdrawn) A apparatus according to claim 74 further comprising an electrical field source that is adapted to couple electrical energy to the window to reduce deposition of the process residues on the window.

84. (Withdrawn) An apparatus according to claim 74 further comprising a magnetic field source adapted to provide a magnetic flux across the window to reduce deposition of process residues on the window.

85. (Withdrawn) A method of processing a substrate in a process chamber, the method comprising:

(a) placing the substrate in the process chamber;

(b) providing a gas into the process chamber through a ceiling of a process chamber, the gas being adapted to process the substrate and clean surfaces in the chamber;

(c) monitoring a radiation transmitted through a window exposed through an aperture in a ceiling of a chamber; and

(d) exhausting the gas from the process chamber.

86. (Withdrawn) A method according to claim 85 comprising monitoring a radiation transmitted through a window exposed through an aperture having an aspect ratio that is sufficiently large to reduce deposition of process residue on the window.

87. (Withdrawn) A method according to claim 85 comprising directing an incident light beam through the window to be incident on the substrate and measuring a property of a reflected light beam that is reflected from the substrate and transmitted through the window.

88. (Withdrawn) A method according to claim 84 further comprising measuring a property of radiation transmitted through the window, and changing process conditions in relation to the measured property of the transmitted radiation.

89. (Previously presented) A substrate processing chamber comprising:

(a) a support;

(b) a gas distributor;

(c) a gas energizer;

(d) a wall comprising a radiation transmitting portion;

(e) a mask overlying the radiation transmitting portion, the mask having an aperture;

(f) an electrical field source that is adapted to couple electrical energy to the wall to reduce deposition of process residues on the wall; and

(g) an exhaust,

whereby a substrate held on the support may be processed by process gas distributed by the gas distributor, energized by the gas energizer, and exhausted by the exhaust, and whereby the mask is adapted to reduce deposition of process residue on the radiation transmitting portion and whereby radiation may be transmitted through the aperture of the mask and the radiation transmitting portion.

90. (Previously presented) A substrate processing chamber according to claim 89 wherein the aperture has an aspect ratio that is sufficiently large to reduce access of process gas to the radiation transmitting portion.

91. (Previously presented) A substrate processing chamber according to claim 89 wherein the aperture has an aspect ratio of from about 1:1 to about 12:1.

92. (Previously presented) A substrate processing chamber according to claim 89 wherein the aperture has an aspect ratio that is sufficiently small to allow ions of the energized process gas to enter the aperture and etch away the process residue formed on a sidewall of the aperture and on the radiation transmitting portion.

93. (Previously presented) A substrate processing chamber according to claim 89 wherein the aperture has an aspect ratio of from about 0.25:1 to about 3:1.

94. (Previously presented) A substrate processing chamber according to claim 89 wherein the aperture has a diameter or width of from about 0.1 to about 50 mm, and a height of about 0.5 to about 500 mm.

95. (Previously presented) A substrate processing chamber according to claim 89 wherein the mask comprises an array of hexagonal apertures.

96. (Previously presented) A substrate processing chamber comprising:

(a) a support;

(b) a gas distributor;

(c) a gas energizer;

(d) a wall comprising a radiation transmitting portion;

(e) a mask overlying the radiation transmitting portion, the mask having an aperture;

(f) a magnetic field source adapted to provide a magnetic flux across the wall to reduce deposition of process residues on the wall; and

(g) an exhaust,

whereby a substrate held on the support may be processed by process gas distributed by the gas distributor, energized by the gas energizer, and exhausted by the exhaust, and whereby the mask is adapted to reduce deposition of process residue on the radiation transmitting portion and whereby radiation may be transmitted through the aperture of the mask and the radiation transmitting portion.

97. (Previously presented) A substrate processing chamber according to claim 96 wherein the aperture has an aspect ratio that is sufficiently large to reduce access of process gas to the radiation transmitting portion.

98. (Previously presented) A substrate processing chamber according to claim 96 wherein the aperture has an aspect ratio of from about 1:1 to about 12:1.

99. (Previously presented) A substrate processing chamber according to claim 96 wherein the aperture has an aspect ratio that is sufficiently small to allow ions of the energized process gas to enter the aperture and etch away the process residue formed on a sidewall of the aperture and on the radiation transmitting portion.

100. (Previously presented) A substrate processing chamber according to claim 96 wherein the aperture has an aspect ratio of from about 0.25:1 to about 3:1.

101. (Previously presented) A substrate processing chamber according to claim 96 wherein the aperture has a diameter or width of from about 0.1 to about 50 mm, and a height of about 0.5 to about 500 mm.

102. (Previously presented) A substrate processing chamber according to claim 96 wherein the mask comprises an array of hexagonal apertures.

103. (Previously presented) A substrate processing chamber comprising:

(a) a support having a receiving surface capable of supporting a substrate;

(b) a gas distributor capable of providing process gas in the chamber and a gas energizer that is capable of coupling energy to the process gas;

(c) a radiation transmitting portion that allows radiation to be transmitted therethrough to monitor processing of the substrate;

(d) means extending into the interior of the chamber for reducing deposition of process residue from process gas on the radiation transmitting portion;

(e) an electrical field source that couples electrical energy to the radiation transmitting portion to further reduce deposition of process residues on the radiation transmitting portion; and

(f) an exhaust capable of exhausting process gas from the chamber.

104. (Previously presented) A substrate processing chamber according to claim 103 wherein the means for reducing deposition of process residue on the radiation transmitting portion comprises means for controlling access of energized process gas species to the radiation transmitting portion.

105. (Previously presented) A substrate processing chamber according to claim 103 wherein the means for reducing deposition of process residue on the radiation transmitting portion comprises a mask capable of masking the radiation transmitting portion from the energized process gas.

106. (Previously presented) A substrate processing chamber according to claim 103 wherein the means for reducing deposition of process residue on the radiation transmitting portion comprises an overlying mask having apertures with an aspect ratio of from about 1:1 to about 12:1.

107. (Previously presented) A substrate processing chamber according to claim 103 wherein the means for reducing deposition of process residue on the radiation transmitting portion comprises an overlying mask having apertures with an aspect ratio of from about 0.25:1 to about 3:1.

108. (Previously presented) A substrate processing chamber comprising:

(a) a support having a receiving surface capable of supporting a substrate;

(b) a gas distributor capable of providing process gas in the chamber and a gas energizer that is capable of coupling energy to the process gas;

(c) a radiation transmitting portion that allows radiation to be transmitted therethrough to monitor processing of the substrate;

(d) means extending into the interior of the chamber for reducing deposition of process residue from process gas on the radiation transmitting portion;

(e) a magnetic field source adapted to provide a magnetic flux across the radiation transmitting portion to further reduce the deposition of process residues on the radiation transmitting portion.; and

(f) an exhaust capable of exhausting process gas from the chamber.

109. (Previously presented) A substrate processing chamber according to claim 108 wherein the means for reducing deposition of process residue on the radiation transmitting portion comprises means for controlling access of energized process gas species to the radiation transmitting portion.

110. (Previously presented) A substrate processing chamber according to claim 108 wherein the means for reducing deposition of process residue on the radiation transmitting portion comprises a mask capable of masking the radiation transmitting portion from the energized process gas.

111. (Previously presented) A substrate processing chamber according to claim 108 wherein the means for reducing deposition of process residue on the radiation transmitting portion comprises an overlying mask having apertures with an aspect ratio of from about 1:1 to about 12:1.

112. (Previously presented) A substrate processing chamber according to claim 108 wherein the means for reducing deposition of process residue on the radiation transmitting portion comprises an overlying mask having apertures with an aspect ratio of from about 0.25:1 to about 3:1.

113. (Previously presented) A window capable of being mounted on a process chamber, the window comprising:

a radiation transmitting portion;

an overlying mask with an aperture; and

an electrical field source that is adapted to couple electrical energy to the radiation transmitting portion to reduce deposition of the process residues on the radiation transmitting portion,

whereby the mask is adapted to reduce deposition of process residue on the window and whereby radiation may be transmitted through the window when a substrate is processed in the process chamber.

114. (Previously presented) A window according to claim 113 wherein the aperture has an aspect ratio that is sufficiently large to reduce access of process gas to the radiation transmitting portion.

115. (Previously presented) A window according to claim 113 wherein th mask apertur has an aspect ratio of from about 1:1 to about 12:1.

116. (Previously presented) A window according to claim 113 wherein the aperture has an aspect ratio that is sufficiently small to allow ions of an energized process gas to enter the aperture and etch away the process residues formed on a sidewall of the aperture and on window.

117. (Previously presented) A window according to claim 113 wherein the aperture has an aspect ratio of from about 0.25:1 to about 3:1.

118. (Previously presented) A window according to claim 113 wherein the aperture has a diameter or width of from about 0.1 to about 50 mm, and a height of about 0.5 to about 500 mm.

119. (Previously presented) A window according to claim 113 wherein the mask comprises a plurality of apertures.

120. (Previously presented) A window according to claim 119 wherein the mask comprises an array of hexagonal apertures.

121. (Previously presented) A window capable of being mounted on a process chamber, the window comprising:

a radiation transmitting portion;

an overlying mask with an aperture; and

a magnetic field source adapted to provide a magnetic flux across the radiation transmitting portion to reduce deposition of process residues on the radiation transmitting portion,

whereby the mask is adapted to reduce deposition of process residue on the window and whereby radiation may be transmitted through the window when a substrate is processed in the process chamber.

122. (Previously presented) A window according to claim 121 wherein the aperture has an aspect ratio that is sufficiently large to reduce access of process gas to the radiation transmitting portion.

123. (Previously presented) A window according to claim 121 wherein the mask aperture has an aspect ratio of from about 1:1 to about 12:1.

124. (Previously presented) A window according to claim 121 wherein the aperture has an aspect ratio that is sufficiently small to allow ions of an energized process gas to enter the aperture and etch away the process residues formed on a sidewall of the aperture and on window.

125. (Previously presented) A window according to claim 121 wherein the aperture has an aspect ratio of from about 0.25:1 to about 3:1.

126. (Previously presented) A window according to claim 121 wherein the aperture has a diameter or width of from about 0.1 to about 50 mm, and a height of about 0.5 to about 500 mm.

127. (Previously presented) A window according to claim 121 wherein the mask comprises a plurality of apertures.

128. (Previously presented) A window according to claim 127 wherein the mask comprises an array of hexagonal apertures.

129. (Currently amended) A substrate processing chamber comprising:

(a) a support having a receiving surface capable of supporting a substrate;

(b) a gas distributor capable of providing process gas in the chamber and a gas energizer that is capable of coupling energy to the process gas;

(c) a wall comprising a radiation transmitting portion that allows radiation to be transmitted therethrough to monitor processing of the substrate;

(d) a mask overlying the radiation transmitting portion and extending into ~~the interior~~ a process zone of the chamber, the mask having an aperture comprising an aspect ratio that is sufficiently small to allow ions of the energized gas to enter the aperture and etch away the process residues formed on a sidewall of the aperture and the radiation transmitting portion to reduce deposition of process residue on the radiation transmitting portion, the aspect ratio being from about 0.25:1 to about 3:1; and

(e) an exhaust capable of exhausting process gas from the chamber.

130. (Previously presented) A substrate processing chamber according to claim 1 wherein the mask comprises an array of hexagonal apertures.